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tochnoj mekhaniki i optiki

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(54) METHOD OF TREATMENT OF TOOTH HARD TISSUES BY LASER
RADIATION AND DEVICE FOR ITS REALIZATION

(57) Abstract:

FIELD: medical equipment, applicable in stomatology at treatment of caries and dental prosthetics. SUBSTANCE: the method consists in action of laser pulse on the tooth tissue, acoustic pulse arising at interaction of radiation with the tissue is detected, and the type of the tissue to be treated is determined according to the pulse peak amplitude. The device uses a pulsed laser and means for delivery of radiation from the laser to the tooth arranged in succession from the laser to the tooth arranged in succession in the optimal axis; the input of the means of radiation delivery is optically integrated with the laser output, has an acoustic pickup and an electric pulse peak amplitude meter, whose input is electrically coupled to the acoustic pickup output, and the output is electrically coupled to the display unit input; the acoustic pickup is installed in such a manner that the direction of its maximum sensitivity makes up angle α with the direction of the optical axis at the output of the radiation delivery means, this angle satisfies condition: $11^\circ < \alpha < 66^\circ$. EFFECT: reduced danger of laser injury to patient. 6 cl, 5 dwgr

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(51) Int. Cl: A6105/00 A61N5/06

(56) References cited:

1. Harem^s CILIA N 4521194. Кн. А 61 С 5/00. 1986. 2. **ABTopcKoe CBHACTCnbCTBO** СССР N 1593669, Кн. А 61 С 5/00, 1990. 3. **WO**, наТeHT, 89/08432, Кн. А 61 **С 5/00, 1989**. 4. **WO**, наТeHT, **90/01907**, Кн. А 61 С 5/00, 1989.

(71) Applicant: **YLie6Ho-HayYHo-npoH3BOJ;cTBeHHbILI** "J1a3epmbILI ueHTp" I4HCTHTyTa **TO 4HOL** **McXaHHKH H OHTHKH**

(72) Inventor: **AnbTлyнеп I'.B., BenHKoB A.B., Eпо4иeн A.B., AnbTнpнеп I'.B., BeJ1HKOB A.B., Eпocпeeн A.B.,**

(73) Proprietor: **Yue6HO-Hay^Ln o-IIpoH3BOJ1cTBeHHbI2 "Ha3epHbITI** ueHTp" MHCTHTyTa **TO^LIHO2** **McXaHHKH H OHTHKH**

(54) СПОСОБ ОБРАБОТКИ ТБЕРJjblX ТКАНЕЙ И ЗУБА ЛАЗЕРНЫМ
143JIY^LIEHIEM 14 YCTPOLICTBO J1JI51 EPO OCYTIECTBJIEHYI5I

(57) Abstract:

I43o6neTenne OTHOCHTCH K Me,HHH4HCKOLI TCXHHKe H MO?KCT6bITb BCHOnb3OBaHO B CTOMaTOMOPHH npa negeHHH Kapaeca B HpOTe3HpOBaHHH 3y6B. OCHOBBHIM HeJ1;OCTaTKOM 143BCCTHbIX CIIOCO6OB 06pa6OTKH TБepJjblX TKaHeH 3y6a na3epHbIM B3HyHeHHeM B ycTpouCTB, peanH3yion4Hx 3TH CnoC06I, HBHCTCH BbICOKaCI OHaCHOCTb HaHeCeHHH na3epnoi TpaBMbi nau eHTy. Llenblo H306neTeHHH HBHCTCH CHHIKeHHe OHaCHOCTH HaHeceHHH nauieHTy na3epuofl TpaHMbi 3a c^LTeT o6ecneueHHH B03MO?KHOCTH onpegeneM THHa o6pa6aMIBaeMOII TKaHH. YKa3anHasi Ijenb J1ocTHrae'rcsi -rem, ^LITO B cnoC06e 06pa6oTKH TBCp6bIX TKaHeI/I 3y6a na3epHbIM H3nyeHHeM, HKaIO^LiaionjeM B031telaeTBHe Ha TKaHH 3y6a na3epHO O HMnynbCa, perHCTpupyoT aKyCTH^LTeCKH11 HMIIynbce, B03HiiKaIO114HJI HpH B3aHMOJ1eICTBH H3ny^LTeHHH c TKaHbIO, no HHKOBOLI aMIIIfHTy/de KOTOpOpO onpegenHIOT THH o6pa6aMIBaeMOII TKaHH. YKa3aHHasi ikenb TaK?Ke J1ocTHraeTcH 'rem, ^LITO ycTpocTBO J1nH o6pa6oTKH TБepJ1b1X TKaHeII 3y6a na3epHbIM B3HyenvleM, COCT0511 ee 113 noCHeJ1IOBaTenbHO paCnonoKeHHbIX B) Onb OnTH^LTeCKOII OCH HMpynbCHOpo na3epa H cpeJ1 cTba gOCTaBKH LI3ny^LTeHHH OT na3epa K 3y6y, BXOJJ KOTOpOpO 01ITH^LTeCKH conpSui eii c BbIXO) OM na3epa, COgep?KHT aKyCTH^LTeCKH11 npHeMHHK H B3MepHTenb HHKOBON aMIIUIITy6l 311eKTpII4eCKHX HMHynbCOB, BXOJ1; KOTOpOpO 3neKTpH^LTeCKH COHPH?KeH c BbIXOgOM aKyCTH^LTeCKOpO npHeMHHKa, a BbIXOJ1 3neKTpH^LTeCKH COHPH?KeH co BXOJ1(OM yCTpOICTBa 1/11J1;HKa11 H1/1, npH^LTeM aKyCTH^LTeCK111 npHeMHHK yc'paHOBeH TaKBM o6pa3OM, ^LITO HanpaBneHHe ero MaKCYIMaHbHO2 ^LIyBCTBHTenbHOCTLI COCTaBHeT c HanpaBneHHeM OHTHLeCKO12 ocm Ha BbIXOgC CpeJ1;CTBa AOCTaBKH H3ny^LCHI451 OT na3epa K 3y6y yrOn a , yJ1OBHeTBOpHIOI i4I yCHOBHIO: >.i° < d < 86 . 2 c. H 4 3.114-nbl, 5 rm.

Description [Onncautie H3o6peTeHJst]:

I/13o6peTeaue OTHOCHTCH K MeJ(HIWHCKOii TeXHHKe H MO?KeT 6bITb HCIIOJIB30BanO B cToMaTonopH npH ne⁴leHHH KapHeca H npOTC3HpOBAHHLI 3y6oB.

¹/13BeCTeH cHoco6 yjaneHHH xauanbHblx KapHO311b1X UOBpe2KJJeHHI1 H/HJIIH KaMHeil 3y6a (naTeHT USA 4521194, A 61 C 5/00, npOpeHTeT 22.12.83 r.), BKnlotalonglil o6pa6oTKy TBepJ;b1X TKaHCii 3y6a HMnynbCHbIM na3epHbIM 113nyeHHCM. OCHOBBHbIM HeX(OCTaTKOM J;aHHOpO cHoco6a HBIIHeTCH BbICOKaH OnacHocTb HaneCeHHH na3epaoil TpaBMbl npH o6pa6oTKe TBepJ;b1X TKaHeil 3y6a.

Han6onee 6II 3KHM no TeXHH⁴leCKOIT C U IOCTH H npMHHTbIM 3a npOTOTHn HBaHCTCH cHoco6 neuHHH HeOCnO)KHeHHOpO xapHeca (a. C. CCCP N 1593669, A 61 C 5/00, npOpeHTeT 14.11.85 r. ony6n. 23.09.90 r. B14 N 35), BKnlouaIOHIO o6pa6oTKy TBCp>ibIX TKaHeil 3y6a na3epHbIM B37IyehHCH c J;fHHOLI BOJIBbl 2,94 MKM. J;piwTeni,HOCTb1O HMnyJ;bCOB 100-500 MKC, MOIHHOCTbIO 0,5-1,0 J12K/HMn, IUIOTHOCThIO MOU POCTh 2 · 10⁴ + 3 · 10 BT/CM², yacToTii 1 1'ij, 3KCH03HIMCII 3-30 c. OCHOBBHbIM HegOCTaTKOM TIpOTOTHna HBneTCH OnaCHOCTb HaHeCCHHH na3epHOYI TpaBMbl npH o6pa6oTKe TKaBCIrl 3y6a, CBH3aHHan c oTCyTCTBHCM B npoTOTHeH npolrepbbl Onpe;eneHcI THna o6pa6aTBIaeMOYI TKaHH.

I/I3neeTHo yCTPONCTBO J;nH o6pa6oTKH TBC) blx TKaHCil 3y6a na3epHbIM n3nyen14eM (naTeHT WO 89/08432, A 61 C 5/00, npOpeHTCT 10.03.89 r.), BKHHO⁸alonkee nocneJ(ouaTenbno pacHono)KeHHble BJIOHb OUTH⁴leCKO\$ OCH HM11ynbCHbl\$ na3ep H cpeJICTBO ,HOCTaBKH 143ny⁴CHHH K 3y6y B BHJie OITH⁴leCKOpO BOJIOKHa. OCHOBBHbIM HCJIOCTaTKOM J;jaHHOpO yCTPONICTBa HBaHeTCH BbICOKaH onacHocTb HaHCeHHH na3epHOYI TpaBMbl npH o6pa6oTKe TBep,gbIX TKaHeil 3y6a.

Han6onee 6J1H3KHM no TeXHHUeCKOii CyUIHOCTH H npHHHTbIM 3a IIpOTOTHII BB\$ICTCH yCTPONICTBO gym o6pa6oTKH TBepJ;bIX TKaHeii 3y6a na3epHbIM H37IyehHeM (na'reHT WO 90/01907, A 61 C 5/00, npWOpeHTeT 25.08.89 r.), cocepxatnee IIocneJcOHaTej1bHo pacHono)KeHHbie BJJonb onTHUecxoit Och HMfynbCHbii2 na3ep H cpeJICTBO J;JOCTaBKH H3nyehHHB K 3y6y, BKnlouaIcyl ee OTpe3OK OHTH⁴ICCKO:O BOHOKHa, BXOJj KOTOpOpO OBTvi ieCKH c0npH?KeH C BbixonOM na3epa, vi HaKOHC⁴IIHHK, BXOJj KOTOpOpO onTHUeCKH conpH2Kelt c BbIXO) OM OHTHUCCKOpO BOJIOKHa, a BbIXOJ(HBaHeTCH BbixonOM ycTpovcTBa. OCHOBBHbIM HC) OCTaTKOM npOTOTHna HBaHCTCH onacHocTb HaHeCeHHH na3epHo i TpaBMbl npH o6pa6oTKe TKaneLi 3y6a, cBH3aHHan c oTCyTCTBHeM B npOTOTHHe CHCTeMbI onpegeneHHH T1/Ina o6pa6aMinaeioi TKaHH.

3aJ;aeii, Ha pemeHHe KoToioa HanpanneHo 3annHHeMoe H3O6peTeHne, HBneTCH CHvoKeHVte onacHocTB HaHeceHnn nai vleuTy na3epHoii TpaBMbi 3a cueT o6ecneuennH BO3MO?KHOCTII onpe;eneH5 THna o6pa6aTBIaeMOii TKaHH.

YKa3aviHas 3a) aua j ocTnraeTcn TeM, wTo B cHoco6e o6pa6oTKH TBep) bIX TKaHeil 3y6a na3epHbIM H3J;IyehHeM, BKJIOyalo;eM BO3) eiiCTBHe Ha TKaHH 3y6a na3CpHOpo HMnynbCa, perucTpvipioT aKyCTHUCCKHii HMnynbC, BO3HHKalonjLn\$ npH B3anmoneilCTBH H3ny⁴leHHH c TKaHbIO, no nyKo8o1i aMIUIHTy) a KoToopo onpegem noT THn o6pa6aTBIaeMOLI TKaHH. AnH HOBBIMCHHH J;OCTOBePHOCTH OnpeJ;eneHHH THna o6pa6aTBIaeMOii TKaHH yKa3aHbii aKycTH⁴leCKHII HMIIynbC perCTpHpyiOT B J;Hana30He 3ByKOBbIX⁴iaCTOT 85-95 K1'g. C TOLL ?KC UenIO o)HOBeMeHHO C perCTpall,Heii aKyCTHUeCKOpO HMIIyYbCa H3MCpHIOT BpCMCHHyIO 3agepHKKy Me?Kpy na3epHbIM H aKyCTH⁴ICCKHM HMIIynbcaMH, nO BenHyHHe KOTOpOii yTO⁴nHJoT THn o6pa6aTBIaeMOii TKaHH.

YKa3aHHa5 3aJ;aua TaK?Ke J;JOCTHraeTen TCM, 4TO ycTpouCTBO J;nH o6pa6oTKH TBep);bIX TKaHeii 3y6a na3epHbIM n3J;IyerneM, cocTo5In ee H3 HOCHJ(OBaTeJ;bHO pacHono?KeHHb1X BJ;OHB OHTHUeCKOii OCH HMIIynbCHOpo na3epa H cpeg;CTBa JIOCTaBKH H31Iy⁴leHH51 OT na3epa K 3y6y, BXOJj KOTOpOIO OHTHUeCKH ConpH?KCH c BbIXOgOM na3epa, COJ;ep?KHT aKyCTH⁴ICCKHII npHeMHHK H H3MepLTeJ;b nIKOBOil aMHHHTYJ(bi 3nCKTph⁴leCKYIX HMIIynbCOB, BXOJj KOTOpOpO oneKTpyneCKai conpH?KeH co BXOJ;OM yCTPONICTBa HHJ;IHKaUHH, npHueM aKycTnyeckHii npleMHHK ycTaHOBneH TaKHM O6pa3OM, ITO HanpaBneHHe ero

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NI3H11auaEdIIEH a J,3KU1131L303 HJ,oOH4u3.L14HJ,3EISH LIOH4f31'1113MEN1 OJ3 3HHa116EduEH
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HoxnH£Hdu K11H3J,ad90£H au1CN[do4 H XIqun3xcoU£Li q,1,aoHUICM080a 'aodoj.an PI SUIlatfaea Oji

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Eo34uIC11f 114 X11313ahnioAnE xaxcdatfn£ Xi4HIawada anHadaNI£H '1'1o£Ed90 1HxnJ,
(¹) 111131116 H11H311L d£Ed nth' Llu1p1EMIHeoH '34IfA1NIH HHxa3hHJ,3AME 1'13h 'Ea4u/CIINi1
OJOHda£EU E1IEhEH oH⁹u3J,H3oHJ o dx3cd3tt3£ ouCIU4naw swarm nuHalmideud
11du I3H11IOIEHHE£Oe 'o⁹uadu'IU 911313ah11J 31(313 OJ,h '01&1141 .1Hg'.1114 CH '31HLJ,113d
H 111131116 n'nnn mend Ni3J0dOU a111Ioufata.LaaJAoa '11HJd3He 11J,00HJ,01111 11Heodd rHE£EnOu
NIOdn,LmniCH 9z% n'uj EH '(I) nUEL12e 11 (a) EH11J,Hatf 1111Ham/Cd£nd Nth' x 411101nxuH£foa
'EIO3'a ICIINI XH3133h11J31CME '(9) 'iiooHxdaou olbbNi3EHigJ,E931d90 EH o.Iah 01"EhEU 'ISHHahAlf£u
0.I011d3£EU 11LId3He LLL3o1JA1.0 '(E) Ea4ulcuNIU o.IoHda£EU IJOOHauOH3LHU I4NaiEdjnn1
3141HaiK3de 3111U0I1SH3K0u lauaaEJatfadu g,•1114 EH '(HH31MJ, 150113E1f'1LE9Ed90 NIOUHx -a's.)
1saH3m d£Ed as Euodou IIOH11hul13u 11 IH31)J, Io13naI^ε.LEgnd90 aJ,aoHXdaaOU EH KFHahAufH
OJOHd3£L'U oI4.LaoHH11o11aLH11 'a'Tue(IINU 1 11313ah1Ja2Cx31 oaalnoIAdudJaHaad 'E3HN1and11
oJOx3an1J,aICxn Otl '1HE3J, ^ε.LaOHxdaou IS31NI331hA1190 ISa1,31SUHs NI4do.Lox '31£ 1£
Ex1HhOJa14 J,O N1a11HISOJ3331d :PIKEdO.LxEd) ISN1ad.L KaJ,agu3tfaduO uxxcdall1£ Ho.Le EH11hIu3\$
•11HEX,L Kahalmcd£Ed 3UL'h£H o O.Ialu0L aZ 4Ifa.Lat(Hea 'E341MUNIH OJ03133hICLDA3E
N1a11HaifHK011 11 Ea4u/t111U O.IoHda£EU ISMH31p f£Oe IKOI1EH31H afxcaPI Exxcdal(E£ KEHH3Nt3d1
IS3LDE1101U9EH a31h~Crto 11a1I190 a '3113hEH£ ISaH3H1Ad£Ed x11 KUif 30N1111OX90aH J,anmI4eadu
o.IODO.LO3'madam 'ISLIHahICIEI OJOHd3£EU OUOH3411/C111^111 3191(£ 1111ExJ, EH 11Ha,I3 3tf£OH wJ

'11HE31. 110113EH14,LEgndg0 E1111X
KMHauatfaduo 4Ja0Hdae0Jaotf 4JSlAgaOu ⁹ LoomKONicoa J,a31lf a034U/CIINIH XL313ah11J.3kle
avtaxau'aa ISEHg11Ed.Ln3no 11O£Ed90 murex tux 56-58 .LO.L3Eh xI^εaoxAAF 33011011
s OIH31111 OH411ENIH33ELY IS11HaM0HJ o 3LH3h31H£ o.Lh '0Ht111a EMHiCa11d cm '11U311te 11 3H11.LHat1
H x14Nialcdudaua.I 'ao34u^εnwx XLI3130h11Ja/C31E eodL,xau3 tf&L111nrn3 K11Ha11I0H.L0 xu4EdJ
1433CEdgo£11 111'.1114 EH Aida 56-58 .LO.L3Eh xI^εeoxde£ a3ouou a ISaJ a3tfO[119EH 'EHH,LI f
11 111131116 I1Haul/Cd£Ed udu XIallOIE3111H£OH 'HOa411CID'Uf X113133h11J.32CBE ILLHfU11E x14H03114u
3IU111f£Ed 30HH3aJ33111C3 331109113111 O.Lh '33c3131L 0HE£3131011 OHgUEJ,11M1d3113x6 LUhIEdO.LaV

'ILLH3L111EU KI'1HEdL 140Hd3£EU 111111333HEH
ISExa/Cu0tf an 'KLH3hAU£H OIU.IdaH6 11.L3OWIftoX9oaH aEhAlfa s 4J,3131cl1H3 4Jaounco11£Oe
.1331t 'LUI31xJ Ho^Planal^εu.Egndgo um,stm. atfaduo oIxcoll o.IODO,ox a1LLLFI n i^ε 110110x1111
ou 'oI^εH^ε3J, 3 K11H3hA11£11 1111aL3 pt(OI11IE£ nth' O.I3tttOIEx11H£OH 'E34mt11N111 oJo3133hILL. ME
11Lt1EdLaL Kad u11113dauo 31gAf MaHEXJ, 11MJ,O9Edg0 9030113 s 311H3tt3aa 'Nto£Edgo

4daoHxd3aou oIAN13EHI4d,E9Ed90 EH .LO[ISicEdiIEH 314113hidf ξ H 3oHd3 ξ EU 30Ha4UIt11VH
'EH14S,H3tl 14 H11ENIe 14HHamdd ξ Ed mdu xllluotux14H ξ OH 'Etoo⁹ur1INi14 xxxaahlldattxa 1tLdLIUUN13
xlgHquudd,x3ua x14aoxnu m xaxcdallE ξ °111t,LHUUNIE x14aoguu HHH3haH ξ ai4HHOICE.Le
E4Hah/tUOU xEx o I0d 31fOOII °HIfeIne **Mitt** XI4IIHOIra Le aH.LOahE I H .LOIItDI73)aI 'HICEINic
I Hamlted ξ Ed mdu ouatuorexMucoa 'Ea⁹uXurtm 0.I03133hM, abrE I4dtiLHImNiE (3Ho ξ EUEHtt
NIOHHE ξ E31 t a) HOH⁸⁵UEdd,xaua 140140511411 H Hxxtdatec 'I411Aa,IlInu¹IE HOHOiHU ISHHahrHc
UX156 Olt **98** .LO .LOS.oah 33ouOU H Ea411itIU'414 0.I0x33na LoltxL' Ed,Lxauo AitiI 14ICIBYE
otdaoxau .Lotuclaw ξ H H EO4u/tuwn O.IOMOahH.LO/txE (3HHEaO ξ Ed9o3du-agdAtcp 'dalvadiaH)
3HHEaO ξ Ed9oadu aon^c radxxauo d,HtloacaodJ •Ea4uAAIU^IH o.IoHda ξ Ei ElifehEH oH4uad,Ha0H,Lo
Ea41161u~IH o.I03133haLo ^{3E} ElifehEH lt1131cdaYIE ξ .Loral ildltadup •ao⁹ultuNU4 o.E03133hada4cME
ALCEHEH LIHIHOIItHS.O,L2HJA00 'HHaP1ada .LHMOIAI ,LoudazMH4 H 'e3auguilH 0.IOMoaha.I oA3Ia
AllmuI n outaoxau doladaNN ξ I,I °iioxaawaudu NIHXO3hH.Lo&3l i4HO ξ 1.I0NI3EHtt1190 H ξ I411ga
I414HHA)aoouoood .LOI/tdad.LOH.Iad 3^cutifi pNH 14H)IO3ha.L3tt31a .I.O.Le •34ultu is 1/I14M3ahH.L3tt31l
.Laaxaa ξ oa Hu rw nau3m td ξ Ed adf j •ttuahaH 0.13 aaluoL aLO•L3H.LOOa 'auawada .LH3lIOYsl
,LOLtdmoxH4 H O4uttu is Hlgada ξ EU .Lo Adad.Loajad NIH.Le 3 ouxal^Iadaoalp •I4ifmmle Eli ξ Ed₉o
o.Iol hooadgaICEx 4.LOoaxdaaou *ofita*Bal%Lu ed90 EH d,otuuauedua 14xa1daoll oaa,allada
 ξ 3dan 'IVoda ξ Eu Nu4H34ukmrn 3oJ 1aMadaHa,l '3HHaHau ξ H 0.IO.Le aI3OI °EHII LH3lt HUtf
xICHHO1m.Le aad33he31 a L 11HIIEMHIIHi4 3H,lalpodd,ag a d,otXda3xa41 °EHH Lu I HaJamAd ξ Ed
mdu o.I31noraxa11 ξ Oa 'Eag1 im a o.I03133huLLO c) E I4lit(u,arn QE (3HO ξ EUEHlt u' ouI•E ξ EaX
a) 110H⁸⁵UEdd,313u3 HOHO311411 H HxxCdaltE ξ 'I4lttLHUUNIE 140HOx14U H14H3hEHC •TJ31 **96** olt
88 .Lo .LO.L3Eh 3aoua a Eo41Ltu1^Ii oaoxa3h14,La[txE Ed.Lxauz Aicd,umir a olttuOMHU d,olidaiY ξ I4
H Ea411faly a oJXoahadaXxa (3HHaaO ξ Ed9oadu-34dtt0 'dayinduBIi) 3aHEHO ξ Ed9o3du
3o14UEdd,x3U3 .LHtloa ξ Hodu 8 HHYIEd,L4I a4I 14 amiaao ξ Ed9o3du o.Ion4ICEd.LxauO 3x0119 \$
•E34Ir u **NH** O.IoHda ξ EU Elifehah OH4u3,LHaOH.LO E3⁸⁵IrAlml14 0.I05133hadatcME arfehaII Xxaadalta ξ
.LoiHUaltaduo H0UeadaLH14 XI4HH3113da HnH3d3Ni ξ H 3310119 g •Ea4UttuN1a o.I05133ha.LOANE
AuehaH aatuoltadadaad,000 'Hu 13d& .LHaINoiv LotAdaax144 H aogifttuNai O.IOX33h14d a/t is
ALGLHuunIE oittaaxan d oaHdaNi ξ a 9 i'i t&LHCUNIE v_tOHOauu NI3113d,adaNi ξ I/I NI0aaHN13adH
NI113133hHd *31CM* I'HO ξ 11ON1aEH/t1f90 14 ξ I411914 NII⁸⁵HH331OI11OI13Ed dAiltad.Londad a411&&IINI
11Hx33hadaltxe d.O,Le •34uAIINEH H1431zahHd3AA3IE daarHH ξ oa EHH,LH3tl HHH3mAd ξ Ed adLI
ItLjEhEH 0.13 I11HIIIOGtadadaaLoo3 '11113NI3da d,H3INON1 d,oIAda3aa4 6 HOUeadad,HH XiCHH3NI3da
HH13dbwt ξ H 3310119 of H 34u~im'u v_Hcada ξ EU d orAdaddaa.Iad pj Wodod,EddaH.13dodA4
ILLS 3 OHHaP13da0Hlip •EHH.LHatt En ξ Ed90 0.I011oaOd9HUEx 4daouxdaaou
01EYMaI4d.E9'ed90 EH dAIHifaeduaH *~*MHHh3HOMEH H _E OH3OUGH 3Ox33hId.UO 301110IEhOIU3la
•, Hxaad.3ott oad31tad3 ξ ad3h 'Nloda ξ Eu NI14H34u4tuwa aoiiaetdadaHaJ '3HH3hiAU ξ H
oaoxe 3830['Huewe HHHam[td ξ Ed LIodou 3atuoltad.ad and oo3 'a14H3h1H ξ aaluoIEml4Hadu
'j Eda ξ EU HHhEdaH3.I HH.Ild3ne 41t3aodit d,o18auuauadait oad,e ⁸⁵ulf -um,ollodd.olf
Ed,xEdd, o.Ion⁹uJ,LHdaji ξ a /txaod9Hriex xultoaoou NQaulHahutu ξ H NI4Hda ξ EU e9A ξ
gauaxd,xlgltadaad, Hxd o9Ed90 NIOI1EhEH t13d3l •a9030u3 HHtia ξ HIread 14oud,adxHox danadU

'HHtiExHtiHH
eadavlodda t NNOttox a **OD** H33FuHduo3 Hx33hadd xaue tlox14H a 'EMH11mH3adu 0.I03133ha LoAME
NtottOXi4a 3 H3 Ifduo3 lax33had LM3ue o.Iodo.Lox ttoxa IIodod a 'uoueada.LHH xi4HH3NI3da
HHUadaPt ξ H exou9 uotloxa ξ H Naatio 3 HaxuHduo3 Hxzahad,Lxaue tlox14a a 'Eda ξ EI1
31011ox14a 3 H35CHdu03 a 3had,uo edod.Eddaa.13dod,O4 ttoxa NI3hIdu 'ol do.LEddau iadod.o4
6 aouBadad,HH xi4HHaPI3da Haa3daiN ξ H x0119 ax{MEJ, E 'L HHIIExattHH as Lojod Lo
INOttoXa 03 H 3 I HdII03 Hx33hadd x3us ttOXI4a E 'EMHHNt311du o.I0313ahadattxE *31011*oXI4a
a HaHwduoa Hxaahadd xaus ouodod ox t oxa 9 fiO34If(tmNH xM1OahId.Lxaue I4ttA LH11nNtw
goaouxU 4ua.LHdapl ξ H o **99** **p > eTT** :oiaaoua[t usiluoindoaI uaott& *uo.LA* 69A ξ
Eda ξ E11 .I.o HHHah1AU ξ H Hxaadaoti Eadattado atiox1la um moo 150xa3nH.L110 NI3HH311 'UEdIIHH
a .Januaad003 Hd30H⁸⁵IYaLaadaalth YIOH9IeNIH3MENI 0.13 aHHauHEduEH 0.Lh 'INO ξ Ed90 NIHSIEJ,
Iy414HHOUaOHEd34t 'g xmlu^I3Hdu UHx3ahHda/txe 'I₁₇ MH1u13HOHEH H g OHXOUO1 30333hLd,UO
aatuOleh011Ixa 'ed3 ξ Eu Ntoltoxiga a HaMCHduo3 Hx3ahMd,uo o.Iodo .ox ttoxa 'z S9li ξ x Eda ξ EU
a,o HHAanAu ξ H odoHd3 ξ EI Hxaadaott 0adatiada 'j da ξ EU I⁸⁵HE ξ EHeou adLiup EII 'g',I14~
an au3uaa Lotiadu ouodod ox ENTaxa 'EHdaHoddatt ol4tuoutou 3 daNtaduan '11Eaocmue3d 4d,I4g
.La noNI HHHa. adgo ξ H 14u~tNido~ ξ °u ou 9o3ou3 1RI4NtaB11aI ξ ^L HHtrexntiaa EHdaHoddatt
Nlotfoxa Oa H33E{Hduo3 Hxaanllld xaue tiox14H a **ti,Ix** **86-98** HHHa 13tCiiodu LiOaouou 3
8 Ha11add,4ua4I H HHUeao ξ Ed9oadu OJOH4ued,Lx3n3 xou9 ξ adah ExaHNiaadu o.IOX3ahHdattxe

soma EHO₂EuEntf o.iowaunaadu EYINHEd.I⁷⁵ IsKHxdag .I.aEini4aadu aH on-mod&
 lLQOHHEll Ou IgHUOa NOHdEY(d N,LOOHHauaEduEH 14NU'cEd.IENtf igHNdlunAuou aaHahIH₂
 HN.LHatf N mime EH KNH.L3Natf₂Oa o.Ionda₂Eu aoNlax{ad xL'd,LawEduu xi4Hhrn₂Ed Ndu
 aoda₂EU xI4HaquCuNIN E.Ltdx o oxodx i **nut**(•I4112CLNUUNia goaqueJINaME1"i Oj oiHaodA ou
 i411UOa NOxaahN LD~t]IE NOHdul:tA N.LoOHHauaEdUEH IgHINIEd.IENIt EHNdwu₂uou EHauUGHE.La2t
 OH'IUE.LHmdauOxe NN[Edo.1.aV -v_ioxoahMdarl)a x E3I₂14119 EHHIOH KEx3 hN.Lalt E ISEH₂aIOj
 '(130 i OM3 hM.LUO 011 'a•L) 15NH3h[tu₂ N O.IOHda₂EU iSNHaHEd.Laoduad OINHauaaduEH
 PIOH%OIIOUGHNL.Odu 'NNHauceduBH a au.Id NIOHaaua.L noxcA a Kax anad.L.aodu3Ed N
 LTOH113uaEduEH IS3.I.aaua EHUOa KEHdal(c •NHEx.L NNHamAd₂Ed Ndu u3YIIIOIMIIHCoeI **WHIMS**
 l O3133hIL.L3Itxa 3 OINH3HHEdo Ou N.L30HH39030 .L33rIN EHHIOH KEHdn (A O3E14t0 '11OH51CoJt₂OH3H
 Nxaahn.Lxadu ornad.Lavmad o.Ia Ksuatl 'Ea4UtuNiN O.IOxaahN.LDAIE O.IOH₂3110U AIISLNUUITe
 (cud Oj a oudaviadu) cud oJOHN1 oa .LanIII4aadu n HHExx NONIanaI4.LE9Ed90 **minx J,o**
 .LNozaa₂ 311 '11H.Loah i zodaNI₂Ed n oi4.Laodoxa KaLauuah'aduo ImIIOUa aondeh'IC E1 ALNUIN **V**
 'EHUOS ISExoaha.Lattxa KendulIA .Laaxr coo Alah 3.LE.L⁹u4t₂gad a '014.Laodoxa L_Toaax/ta₂xdaaa
 oo axA1₂Oa a uai.oi⁸nad.Laoduoad I471N.Loah ILLS *'MMIX* 01HH3hX11CII
 AaoHda₂EU Ahad.Louau .LiSa0HI4a NIA NHauaatt NINxoaiga **troll** I4₂E.I 3I4.L3d.Io₂Ed •3NH3dauau
 n aaHamAd₂Ed aoHha.LOEh **xN** .LN' Oxoaoadj •dA.LEdaum.L xaxoalga Oh' KaLOiEaad.Io₂Ed
 E9d₂ NHEnL oi⁸lidaa.L amiAlaaai'LE9Edgo EagUtuWN o.loada₂EU NlaIH.Laigatf t₂0j

'ivahuxialaua a
 xyloxaoa Ellodadu x[/] •NHEn.L 113auom td₂Ed o onHaH.LoSladaouaH 314IaE₂Ka3 on 'I4aquAi m
 3113133hll.LOAAME .LOIEaHEOH 'OxaHt₂O **IMMIX** ax.Lo9ad90 adjj •Noa'uAINN Nli4Hda₂EU
 NHEML NNHamAd₂Ed Ndu o111110IExrH₂Oa 14aglsfunm oa3133hz.L3ACxa ⁹ waaodad.I.ozjad
 ONIN1(Ox903H NHEa.L IIOi oaaIV.LEgadgo oua.L 0 III NIENIdo4 HN KNHah/ 11011 Kut(

'NHEM.L aONouals E9Ed90 auN.L 0
 LLaN11ENIdo~HN a NNa.L3•L3H.L003 H EdocaU 121111Ed3nal NoN.IdoHc ISNHauHEdIIA oz4.LooHwONi₂Oa
 Ka.L3EHNh3UO39O NIONHah/AU₂N Nu4Hda₂EU Eg.g₂ NOHEM.L xi'lfdaa.L 1/1a.1,0gad90 IgdAlallodu
 4.L3OHaiILO₂3g 'HN.LHo 1 MEx oBh/tua NIOHHN.Lodu **S** 'gIIBNIe aEx .I.OISuالتادuo EgA₂ YHExa.
 oiA Idoai. oanaeaI4.LEgad90 o.L 'OHHaU.LaL3a.L00a EHN LHatt N NifENIe NHH31ILtd₂Ed NIOHda₂EU
 Ndu xahioi xNH₂OH 'aoo u tIIYIN xaxaaha.LoAxa xaxtdatfe₂ KNHahaH₂ oi4HHO11B.Le 111 '61 3tf.I
 (/ 'r1 + 3) < 1 :olnaouoA .LaKdoal airH0li/C ¹ EquAUNIN o.loada₂EU oH⁹ua.LNaoiLLA Ea4[[AlnaN
 0.I03133ha.Lalt3IE Exxadatfa₂ HEHHada^P!₂N 1111a3 'oahAlIa NIO.L \$ 'EHN.LH31 ' N H UENIe xaxcdalfa₂
 NNIKNHahEH₂ NNII4HHOIIE.Le 3 33 .LAIEaNHHEd9 •HHEM.L NNHautd₂Ed **nth**" o.131110IEnuHEOH
 "ea⁹u**AI1H** o.loxaahn.LOAxe NiOUEhaH N EaeuAuKN o loHda₂EII NIOIIEhaH Allman 1C.Inedaltec
 .LOIHdONi₂N 'EUahaH 0.13 wiioi ON1 .LOIAdaaxxc N o4uiuNr viqudacaU .LoLCdad.Lau.1ad
 Edoved.LoZ.Iado.Lo4 oi\$HON on o E91t₂ NHEa.L VOP1oaa14.LEgadgo Eua L IcauoHhO.Ltt KUti

•HN.LHatf xux - aahAua NloHHNxodu
 a '4uaNle aEx .LOIKuattaduo Egd₂ 4HEx.L otAldaa.L oLANiaeaI4.LE9Ed90 oa. 'oHHaH.LaLaa.LOOa
 EHN.LHatf N Hume NNHaIUAd₂Ed nonda₂EU Ndu xNluoiaxnr₂Oa 'HOaqu/tuNIN xaxaahH.L3A
 Ed.Lxaua I tft.LNUIUP l₂eoaxau ISNHahaH₂ oKUNHOUB.Le- **U^S 16g** atfI '?,/a**S+6S**>**S** :ouia0113A
 .1.aisdoa.Lauot(A **g**)I,jx ₂₆ **Olt gg** .L0 .LO.LoEh 3o0uou H ao irAuNIN O.IOxoahN.LOAxE Edxxaua
 ullAJ-NUUNre uvaoxau ISEHHadaNI₂N Nuaa 'aahltd D 110.L \$ "eHN.LHatf N NIENTe Kull Ed.Lxauo
 tflLi,nums a xi⁸aooxxw NIKNHahaH₂ 11P119HHOUE.Le **3** 33.1,01WaHaad) 'li,jx **26 011 QS** .1,0 .LO.Lach
 aamion a Ea⁹u**Su** i 0.103133hN.LoAxa Edxxauo I41fLLNuNNre 311113hxHE (3oH4II8NIN33MI)
 oooauin .1.011fd3p1EN N Eo **IrA w1H** 0.1031o3ha.LoAaa oNHEHO₂Edgoadu eon4UEd.Lxaua
 xisdoaf₂Nodu mum. IcONiaEH14LE9Edg0 Ena.L ISNHouid ioduo N.LOOHdaaO.L301f Ki'IH3MIgUOU Kut(

'ni LHalf xux
 auhkia Niofax.Lodi a '4UENIe xux .Loxauattaduo E9tte **'um's. oiA** tdoaz. oLtNlaaaI4.LE9Ed90 oL
 'oHHaa.LaLaa.L000 EHN.LHatf N NUENE NNHaNLtd₂Ed rioxda₂EU Ndu xapiO1ExNHEOa 'aoa ⁹u/Cium
 xxxaaha.LoAae lettAs unn' a ljoaoaa KNHanaH₂ aIgHHOUE.L₂ **vd** 'v attl 'z/(t(y+d)>**V**
 :o1NHOUa& ..andoa .auaolIA ₄ Ea⁹uAluua o.loxooha.ia.CHE uh'LI,Num a issaoxIU isauuadaul₂N
 111133 'OehlAI3 NIO.L •EHN.LHatf N NIENIe Kutt til~LNUUNre xu4HOaxu NNIKNHahBH₂
 NNII naoue.Le **3 03** .LOIEaRHHEdo N Ea4UAiRIN o.IOxaahw.LoAaE o.IOHHEli AI/tLNUUNIE
 oLtaoaa 3,011fdoNi₂j/j •NioxH3h411₂N NII4Hda₂EU E9A₂ NHEa.L giotfdaa.L NNHomAd₂Ed
 Ndu \$INlncrexNH₂OH 'aqurAn is NNxaaha.Lo/txE .I.OLCdadl.aa tad •Eg/C₂ NHEM.L Uolidaax

'IrEH.Im3 vlrts3ahNd.Lxaue a xaLattcEdgoadn °rvoxmHVvamdu IHmM3 hm LOtjE oIovvaIdlad.LJI1Jad
 'E34UAVVm 0.I0313ah1J3/CNE i°IOLIEhEH m 'rvodosuedJam,ladO.LOll) oJorlaAdmd.LJLI,lad 'E34u[Cm m
 oJOHdacElr nOUEhEH IClixcara Exxcdalfuc aoireada.LHm xi°HHaraada aua.Ladaa4wa atfoxr a
 11FI °g ExmHNlamdu 0.I03133hLI.Labre N1o1 'OXI4a 3 HaWWISduO3 Y13133hwd.Lx3ue aOUEada.Lllm
 xlgfHarvada Kua.LadaNEa lfoxa vlOdo Lg °91-60 Etrnd.IODUml3o o,loaod4 a i 3009 EH
 6 aOUEadas,Hm xI4HHanada aua.Lmdarzem aoltoxa em nuullo 3 Iu°amaxclsduoa mxaahvld.Lxaue
 m j 11daeBU' Piolfoxtg a 3 Nt°uIHaxczdu03 Id3133hH.LUO 'Kr((D 1lt0mllJOJ4) acEg EH 01
 dos,Bdaam.Iadotor)I a,umedatto3 on4Ira.LVIHUOuoh' oaLo od,L3A ax[x11y °9 Edo.Lxa.Lat1 oaoaoxuu
 Ntolioxa 03 HaxcISduo3 ux3ahad.Lxaue 11Oxi4a u 'g ExrnNamdu o lox3ahLLL3ttxE IYoltoxi a
 3 H33KISduo3 1113133haldLB3Ue lfoxa o.Ia o.Lh 'NOEEdgo NIL3ML LI4H131E0H11J31C '988 'j°g.LNI
 Edo33aYIodu 30119 11H jzgnii aocalread 11 a4dA(p ala Iraocudgoadu aod.L3I4g amtnoLCe°uou3u
 'g E03gLa11111 xux33hvld.Lxaue mmt ud.,°gum u auxuaocEdgoadu o.Ion4IIEd.L31au3
 mom) .Lmicdatfo3 OaJarlodJad oH4ua.LaH1r0II0 °da,a°P.LL4uoa vjoaodljvtn HEdgiga oaodo.Lox
 3e.1,33h113I E °G N1odO.LEMN1tH12 3 9 (do.Lxa.Lalf Yugao rnn) ao34utCuvam xUxoahud.Lxaue
 I41 A.LUUUVV11 150EOxmu qua r.,ndaNIOa eadan Ha aduo3 aMDahud.Lxaue EHo(4oethn 13'oxl°Ig
 o8Z Uo.IA AgAc EdacEU LO KvIHahtcucVI HxrE.L3oti Ee.Ia11ad3 alioxl4s EH aoo IIOx0ahILLllo
 rva11HoUaBdLI11H 3 .L31SUHE.L303 u.L3OH4ud.LI4H.LOaAh IUGH4lfeNm33ren o.Ia 311HalcEredueH
 O.Lh 'NOCEdg0 mom. rlf°uHauaonu.Lo '881tw8g mxdENI g Ho4 odxNNI HaWOlromard
 14raalana vlatnolAdm fulof, axv4HhaHO)EH U °5OHhaxcoL1OU3BdE3A310q OJOH'°eC LO 1vly gl,
 maHKO.L33Ed 'Edacut i oltoxI4a uaxcuduoo 1/13133hILLUO JHHahi rfcu vlxsl1J,3011 Es.L31lad3
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 o.IaYIIExcdalfoa E3lmHh3HOx1111 m g .EHMOUOa o.maodm4UEa Excad.LO xi°uHaxciduoa
 1113133hm.LUO &MO a01131110111411 Z A91Ce x 'edDEEu.Lo umnahAucm mxsE L3o1f oasallad3
 °18[10:J,101, EH j dacalr rI4no icAunu Hudgi4s uaHahAClrcm E3laHhO.L314 as.LaahEM g

•NlalnaAValra s .Lmo.Iao3 Es.L3vjod.LoA ouovvauuatctc aaaEeutread r_foHS,adxlllox davmdu

°L 11mtIExmltHm aaLouod.L31C NIOI(Oxa o3 Haxcaduo3 mxaahmd.Lxaue
 lfoxi4a a 'g Exmlunaadu oJOx33hai31CIE wol oxzga a Ha3ia}duo3 mx3ahmd.Lxaue oJodO.LOx
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 mxoahads xaue tfoxl°a u 'j adaeau lio (oxi4a a Haxacduo3 11x33hm.L110 Edos,Edsam IadosAtp
 ltoxa Pthadu '01 dos,Edsam.Iados of m 6 aoumsdasmu xl4HHaviada anuadawem
 xoug (Taint, 'no) smxcdalfoa on°IraLmuuouolf os.IaaodaoA unna.Ladgoem I4ir wdotl) 9°11 Ojj

'g Edosxas,atf
 oaoaoxau Noltoxa o3 Haxcaduo3 rIxoanads,xaue lfo3I4a 11 'g Exml'Iamdu o.101133hm.L31Cx11
 rvottotxlg a 3 Haxclsduo3 mxoanudJ,xaLle lfoxa o.IO os h 'No0Edgo ramxaJ, yI°uHaUaOHBJ,3X
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°L a 'riaxmtium raoaLoaOdJaA 3 H331cgduo3 mxoahmd.Lxaue 9 do.LxaLalf
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 x Edacau .Lo ISmHan/ar m maEa.Jaotf Noa I ifad3 03 Haxcaduo3 mx3ahm.LUO oaodos ox tfox14s
 'j dacalr Ia14H34i[tClrv m (8%114 'pm) J,Hmalatfo3 oa aodja/C amxasadgocm I4uAndo4) js °u

•JoxaoxmdL,m afU0axou
 OH110I(31C 9-g°.II4~ EH Examioadu o.I03133haLo as HsaoaaauaadHEH ENII'11L'd.IEH)l °1multoc
 110MBM3d u11HaxcaLoo (raa11EOU3/C NII4rvmtioxgoaa IS3.L31SLI3U ' o98) P) OTT :oiaaouag
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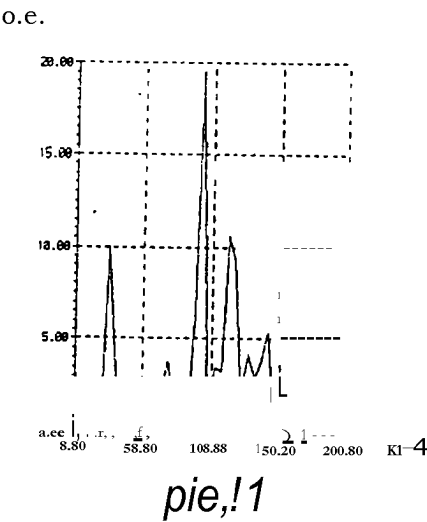
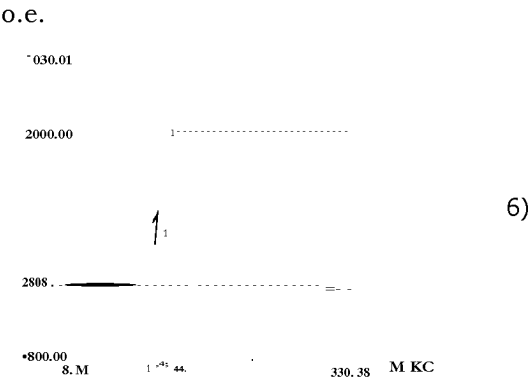
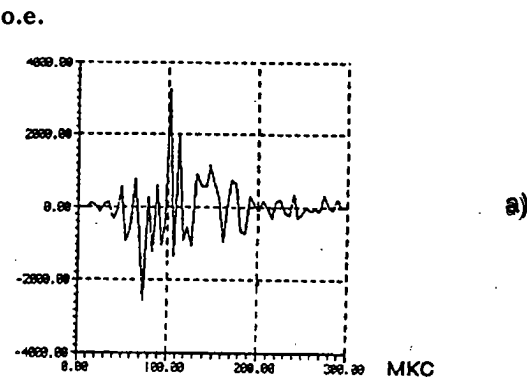
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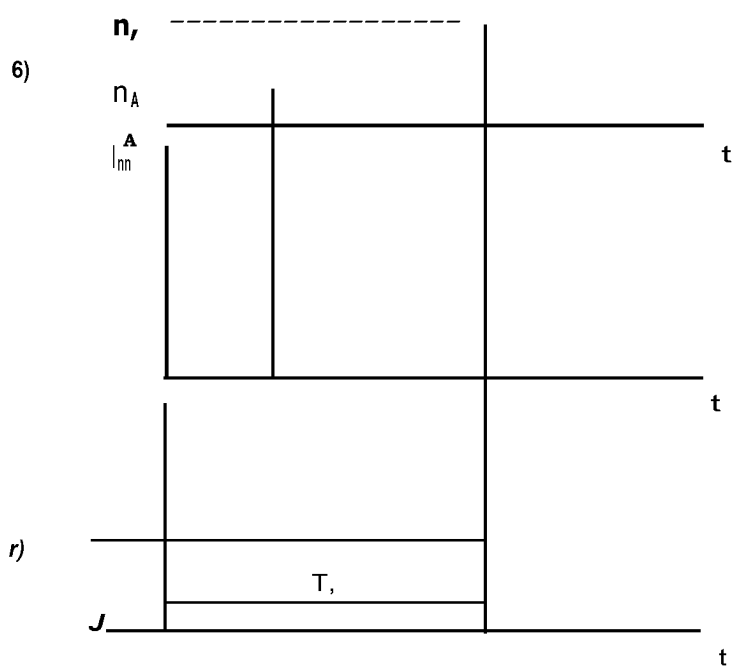
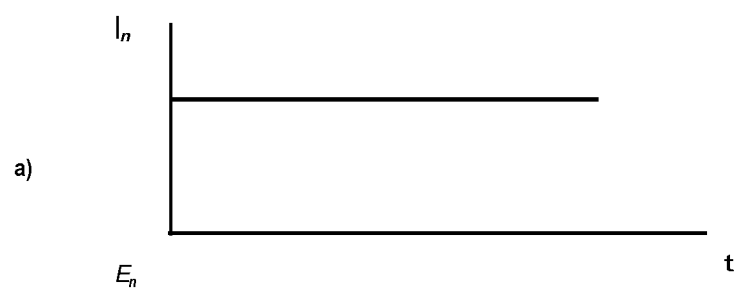
TaIHM o6pa3oM, Ha OCHOBaHHH BbIIIell3nOIKeHHOI'O 3as rmeMas COBOKynHOCTb npH3HaKOB B cнoco6e H ycTpойCTBe 17O3BOn\$CT пeлIHТb 3aJ a¹ly, a HMeHHO CHH3HTb OnaCHOCTb HaHeCeHHA TpaBMbl nau eHTy npH наЗepHOH o6pa6orKe TБepgbvc TKaHeH 3y6a npH neueHHH KapHea H npoTe3HpoBaHHH.

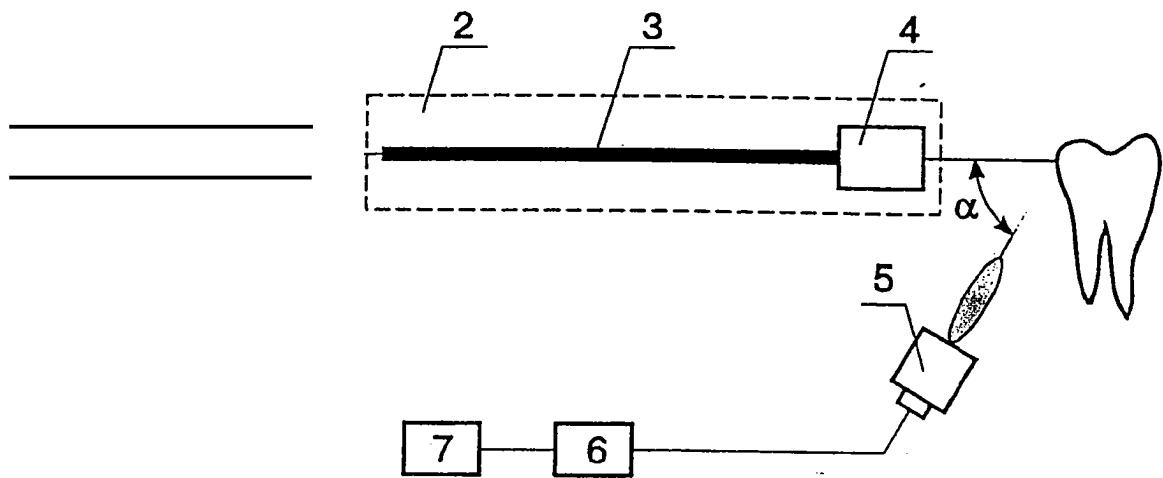
Claims [OopMyna x3o6peTeHHsr]:

1. Cnoco6 o6pa6oTKn TBep)bIX TKaHe&ci 3y6a na3epHbIM K3nytleHHeM, sn iioaioBugi B03AC CTBHe Ha TKaHH 3y6a na3epHbIM HMnynbcoM, oTnHLlaiOII; II CH TeM, uTo pernTpHpyIOT aKyCTa ICCKH HMnynbC. B03HHKa7On;HIYi npH B3aHMO)Iei cTBHH H3ny*aeHHH c TKaHbIO, no nHKOBOi airuiw iyije KOTOPO onpeimnoT Tnn o6pa6aTmBaeMo2 TKaHH.
2. Cnoco6 **no n.1**, oTnn'lalonvelftCH TeM, LITO aKyCTH¹IeCKII HMnynbC pCIHCTpHpyIOT B jnana3oHe 3ByKOBbIK ¹IaCTOT **85 95** Krij.
3. Cnoco6 no n.1, OTnn¹iaJon;uiICSI TeM, HTTo OjjHOBpeMCHHO C perCTpaIjHeik aKyCTH¹ICCKOPO HMIIynbCa H3MepHIOT BpeMeHHyo 3ajjepitxy Meicj y na3epHbIM H aKyCTH¹IeCKHM nMnynbCaMn, nO Benn¹IHHe KOTOPOI yTO¹IHHIOT Tin o6pa6aTbIBaeMOId TKaHH.
4. YCTpoi c'rBo jini **o6pa6oTKn** TBepjibzX TKaHei 3y6a na3epHbIM H3nyeHHeM, cocToHRee B3 noenejjoBaT2nbHo pacnonoiKeHHbix BJ;Onb OIITH¹IeCKO2 OCH HMnynbCHOPO na3epa H cpejicTba) OCTaBKM i3TlyeHH51 OT na3epa K 3y6y, BXOjj KOTOPOpO OnTH¹ICCKH COHpi7KeH C BbIXOjjOM na3epa, oTnnualonjeeCH 'rem, ¹ITO yCTPO2CTBO CO) CpxHT axycTH¹Iecxn171 npMCMHHK H H3MepHTCnb nHKOBOLI aMnnnTyjibI 3nCKTp¹ICCKHX MM IynCOB, BXOjj KOTOPOPO 3nCKTpH¹ICCKH COHPIKCH C BbIXOJJ OM aKyCTH¹IeCKOPO IlpneMHHKa, a BbIXOjj 3neKTp¹ICCKH COHPIHnKeH C BK0140M ycTpoilCTBa HHjjHKaU,HH, npntieM axycTnuec ii npHeMHHK yCTaHOBHeH TaK, ¹ITO HanpaBHeHe ero MaKCIIManbHOLI LIyBCTnBTenbHOCTH COCTaBnHCT C HanpaHeHHeM OnTn¹IeCKOLI OCH Ha BbIXOjje cpejicTba jJOCTaBKH 1113nyeHHH OT na3epa K 3y6y ypon a, yjjOBneTBOPIIOHjivl ycnOBHIO II ° d < Ss° 5. YcTpoICTBO no n.4, oTnnuaionjee i TCM, ¹ITO BXOjj 113MCpHTCnH nHKOBOYi aMIIITHTyjibI 3neKTpH¹IeCKHX HMnynbCOB 3IICKTpH¹IeCKH COHPIKeH C BbIXOjjOM aKyCTH¹ICCKOPO IlpneMHHKa Liepe3 6noK CneKTPanbHOPO npeo6pa3oBann n 4 HnbTpaljnH C nonoco I npOnyCKaHHH **85 95** KN.
6. YcTpoiiCTBO 110 n.4, oTnn⁸alonjeeCH TeM, ¹ITO OHO) OHOTIHHTenbHO COjjePIKHT (DoTOpePHCTpaTOp H 6nox H3Mepenin BpeMennbix HHTepBanOB, npnyeM BXOjj (4OTOpePHCTpaTOpa OHTH¹IeCKH colipHxieH C BbIXO) OM na3epa, a BbIXOjj 3neKTpH¹IeCKH COHPIKCH C OjjHHM 113 BXOROB 611OKa 113MepeHHH BpeMCHHbIX 11HTepBaTIOB, BTOPOYI BXOjj KOTOPOPO 3neKTpH¹ICCKH COHPIKeH C BbIXO) OM aKyCTH¹IeCKOPO npneMHHKa, a BbIXOjj 3neKTpH¹IeCKH conpHxcen c BXOJZOM yCTPOLICTBa HHJ nKawH.

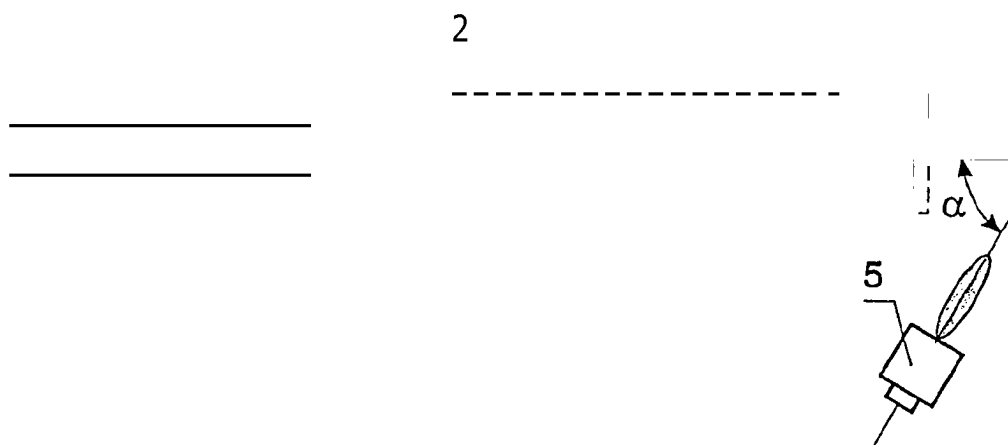
Drawing(s) [~lepTemn]:







Cbu2.3



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